

REMARKS

Claims 21-46, 48-51, 53 and 54 are rejected. Claims 21, 29, 30, 53, and 54 have been amended. Claims 1-54 are presently pending in the application, with 1-20, 47 and 52 withdrawn from consideration. Favorable reconsideration of the application in view of the following remarks is respectfully requested.

The basis for the amendment of Claims 21, 53, and 54 is found on page 23, Table 4, PE-1 to PE-6 of the specification as originally filed, as well as page 3, line 16 (crosslinked). The basis for the amendment of claim 29 is found on page 10, lines 4-16 and page 23, Table 4 of the specification as originally filed.

Double patenting:

The Examiner has provisionally rejected Claims 21, 22, 25, 49, and 50 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-11 and 1-9 of U.S. Patent No. 6,528,147 and 6,475,602 respectively for reasons of record and for reasons given below. In a response mailed February 19, 2004, the applicants included 3 terminal disclaimers. Evidence of receipt of the disclaimers is provided by the attached postcard, returned by the Office, bearing an OIPE stamp dated Feb. 23, 2004. Copies of the 3 terminal disclaimers are also attached to expedite matters. Therefore, the Applicants request that the Examiner withdraw the rejection.

Rejection Of Claims 21-46, 48-51, 53 and 54 Under 35 U.S.C. §103(a):

The Examiner has rejected Claims 21-46, 48-51, 53 and 54 under 35 U.S.C. 103(a) as being unpatentable over Maeda et al. for reasons of record and for reasons given below.

Maeda relates to an ink absorbing layer comprising hollow crosslinked particles in a binder on the surface of a support. Maeda fails to mention the use of porous polyester particles having a mean diameter less than 0.5 microns, and in which more than 58% of of these small particles have diameters smaller than 0.5 micrometers.

The present invention relates to porous polyester particles of less than 0.5 micrometers in diameter. These particles, when used in coatings provide enhancements in the gloss of the coating.

To establish a prima facie case of obviousness requires, first, there must be some suggestion or motivation, either in the references themselves, or in

the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art references (or references when combined) must teach or suggest all the claim limitations.

Maeda fails to mention the use of particles of mean diameter less than 0.5 micrometers and fails to mention the use of these particles to enhance the gloss of a coated layer. In fact, the particle size range of the particles of Maeda range from 0.5-100 micrometers and Maeda teaches that, if the particle size is too small, the particles become difficult to handle in a coating material. See paragraph [0006] of Maeda. Maeda also fails to produce a reasonable expectation of success, as Maeda fails to mention that particles of size less than 0.5 micrometers prove useful in providing a coating with increased gloss (paragraph [0026] of Maeda) and also teaches that these particles are difficult to handle in coating materials (see paragraph [0006]). Finally, Maeda fails to teach all of the limitations of the present claims as it fails to teach or disclose the use of particles of less than 0.5 micrometers. Maeda fails to mention that in a distribution of particles of mean diameter less than 0.5 microns, more than 58% have a particle size of less than 0.5 microns to produce high gloss coatings. See paragraph [0006], [0020], and [0021] of Maeda. As a result, Maeda fails to support a prima facie case of obviousness under 35 U.S.C. 103(a).

Even assuming such a case is made, the reference to Maeda teaches away from the present invention by indicating in [0006] that smaller particles are difficult to handle as coating additives. In addition, the present invention provides a surprising result of increased gloss when the particles are used as an additive in a coating, as illustrated by Elements 1, 2, and 5 in Table 5 on page 26 of the specification, at proportions of 58% or greater.

The Examiner also indicates that, according to Maeda, the volume average particle diameter is 0.50100 microns, and the Examiner cannot patentably distinguish 0.5 microns from less than 0.5 micrometers in the absence of a showing of the criticality of this feature, especially because applicants' contemplate having multiple types of porous polyester, some of which have a greater average particle diameter. The Examiner has considered applicants' showings but was unable to identify showings that demonstrated the criticality of particle size by varying only this feature of the recording medium. The following

Table A has been prepared to clarify the results obtainable with the inventive particles by combining Tables 4 and 5 with the description of preparation of the elements on pages 23-26 of the specification. No new data or other information has been added in the preparation of this table.

TABLE A

PE dispersion	Particle Size	Mode 1	Mode 2	Element	60° gloss
		Mean diameter (micron)	Mean diameter (micron)		
PE-1	<0.5	0.356	--	1	36
PE-2	<0.5	0.181	0.351	2	72
PE-3	Mix	0.390	2.70	3	20
PE-4	Mix	0.470	2.24	4	28
PE-5	<0.5	0.174	0.391	5	70
PE-6		0.430	5.86	6	40
PE-7	>0.5	0.897	2.62	Control C-1	3
PE-8	>0.5	0.682	3.10	Control C-2	5
Commercial Product	--	--	--	Control C-3	88
Commercial Product	--	--	--	Control C-4	38

Table A indicates that coating made with porous polyester particles (1, 2, and 5) according to the present invention produce glosses higher than or equivalent to commercial products. Table A also illustrates that bimodal coatings in which at least one of the modes has a diameter of less than 0.5 micrometers (2, 3, 4 and 5) have improved gloss when compared to coatings (C-1 and C-2) made with particles of greater than 0.5 micrometers. This is also supported by the Declaration of Landry, paragraphs 4 and 5, submitted herewith.

The following Table B has been prepared to further clarify the results obtainable with the inventive particles by combining Tables 4 and 5 with the description of preparation of the elements on pages 23-26 of the specification. No new data or other information has been added in the preparation of this table.

TABLE B

PE dispersion	% Particle Size < 0.5 micron	% Mode 1 < 0.5 micron	% Mode 2 < 0.5 micron	Element	60° gloss
PE-1	100	100	0	1	36
PE-2	100	5.9	94.1	2	72
PE-3	88.2	88.2	0	3	20
PE-4	58.6	58.6	0	4	28
PE-5	100	45.1	54.9	5	70
PE-6	82.1	82.1	0	6	40
PE-7	0	0	0	Control C-1	3
PE-8	0	0	0	Control C-2	5

Table B indicates that at least a 4 fold increase in 60° gloss is achieved when more than 58% of the particles have a particle diameter of less than 0.5 microns. If larger particles are present, by subtraction, they would account for no more than 42% of the particles. The Examiner states that “The mere fact that Maeda et al. does not discuss gloss does not overcome the rejection. The fact that applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See Ex parte Obiaya, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985).” However, according to Maeda, not only are the particles greater than 0.5 in mean diameter, but the particles of this size occupy more than 70 weight % of the total. See Maeda, paragraph [0006]. The present claims are limited at least 58% of particles with a diameter of less than 0.5 microns. The gloss advantage of the present invention would not flow naturally from the invention of Maeda, as illustrate by PE-7 (10.6% of particles having 0.897 diamter and 89.4% particles having diameter of 2.62 microns) and PE-8 (7.6% of particles having 0.682 diamter and 92.4% particles having diameter of 3.1 microns).

The Examiner also indicates that, since the present inventive particles may be a component of a system of particles, it would appear that all of these claim limitations may be met by subdividing the particles disclosed by the prior art reference into different categories, so that a peak in particle size distribution is formed as set forth in claim 29 or 31 in one case, or so that there is a standard deviation of particle sizes as set forth by claim 30 in another. As

illustrated above in Table A, bimodal distributions, which include at least one mode with a particle size of less than 0.5 micrometers is not taught by the reference and provides surprising results. Also, as discussed in paragraphs 13 - 15 of the Declaration of Leon, the present inventive particles are not a component of a system according Maeda. The presently amended claims also indicate that 58% of the particles in the distribution must have a particle size of 0.5 microns or less (see Table B).

The Examiner also indicates that the support may include inorganic or organic fillers and sizing agents, the reference discloses that sizing agents include polyvinyl alcohol, the reference discloses use of underlayers or specialty supports in order to obtain a smooth surface, and, normally, smoothness and gloss are related characteristics and it is also well known in the art to form or treat the ink receiving layer in a way that maximizes gloss when a glossy surface is desired, for example, it is well known to calendar the surface of the medium to increase gloss. The Examiner indicates that it would have been obvious to one of ordinary skill in the art to treat the surface of the medium of the reference in order to obtain a desired level of gloss. While it might be true that there are a variety of methods for controlling gloss, the utility of the present application relies on the use of porous polyester particles of diameter less than 0.5 micrometers to improve gloss and there is no showing that the use of particles of diameter less than 0.5 micrometers are known to improve the glossiness of coatings.

The Examiner also indicates that the reference discloses the formation characteristics of the polyester particles in paragraphs, including the use of fumaric or maleic acid in forming the polyester, inclusion of sulfonated monomers, number average molecular weight of the polyester, and the content of ionic groups, and although the acid content is not described in terms of an acid number, the reference does disclose mole % of acid and it would have been obvious to determine the acid number using this information. As discussed in the Declaration of Leon, paragraphs 10, 11, and 12, it would not be obvious to one of skill in the art to determine the acid number using the information provided by the reference.

The Examiner indicates that, with respect to the claims directed to inclusion of a layer comprising particles of mean diameter of greater than 0.5 micrometers, there are no limitations in these claims that distinguish one layer

from the other, i.e., the layers may have the same composition. The Applicants respectfully disagree. The language of the claims indicate that one layer has the small particles of less than 0.5 microns, while the second layer has particles larger than 0.5 microns. While both layers contain porous particles, the size of the particles provides the distinguishable feature. The Examiner indicates that "There is no disclosure in Maeda to indicate that the layer of Maeda could not be divided so as to produce two layers with differing particle size distributions." The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990) Maeda provides no suggestion to combine particle distributions of predominantly small particles with other size distributions to improve gloss.

The Examiner states that, with respect to the limitations directed to particles having various mean diameters of greater than and/ or less than 0.5 microns, as set forth in claim 29, the particles may be considered "a component of a system, " therefore, the particles of Maeda et al. may be subdivided into various components, some with mean particle diameters greater than 0.5 microns and others with mean particle diameters less than 0.5 microns. Again, Maeda provides no suggestion to combine particle distributions of predominantly small particles with other size distributions to improve gloss as presently claimed.

The Examiner states that the results in the specification are for one specific material rather than the broad category of polyesters that is now claimed. Attached Second Declaration of Landry-Coltrain contains evidence of the functionality of the present invention utilizing other materials in the broad category of polyesters presently claimed.

The Examiner states that the a different technique was used to emulsify the comparisons (see Table 3). The attached Second Declaration of Leon describes the reason for differing techniques, that is, that these techniques are necessary to produce different particle sizes.

The Examiner states that Applicants' arguments relating to claim 29 are directed to particles having bimodal size distribution, but this is not what is claimed in claim 29 - Claim 29 is broad enough to read on a monomodal system.

The Examiner states that Applicants' arguments relating to claim 29 are directed to particles having bimodal size distribution, but this is not what is

claimed in claim 29 - Claim 29 is broad enough to read on a monomodal system because it would permit monomodal particles to be broken down into different system components. Claim 29 has been amended to require at least a bimodal system.

The Examiner indicates that control examples C-1 and C-2 use particles that are emulsified by a different technique than applicants use for the examples representing the invention and a direct comparison cannot be made effectively, Landry states that "the majority of our particles have a mean diameter less than 0.5 microns.", however, claims 29, 30 and 31 depend from claim 21 and do not set forth percentages of particles below 0.5 microns and Claim 21 uses open claim language which reads on 1 % or even less of the particles present being within the recited size range, and Landry argues that Maeda et al. requires particles of mean diameter greater than 0.5, that Maeda et al. indicate a monomodal system, and that the reference does not have a majority of particles of less than 0.5 microns. The Applicants have included the Second Declaration of Leon to describe the validity of comparing the particles made by different technique and have amended the claims to require a certain amount of particles and a bimodal distribution as appropriate.

Rejection of Claims 21, 22 under 25 USC § 102(b):

The Examiner has rejected Claims 21, 22 and 25 under 35 U.S.C. 102(b) as being anticipated by Okumura et al. (5,360,780), as the reference discloses an image-receiving sheet for thermal transfer printing comprising an intermediate layer and an image receiving layer (see the abstract), the intermediate layer of which contains thermoplastic resin fine particle aggregates coated with a binder, some of which aggregates are polyester in the size range of 0.2 to 20 microns.

Okumura discloses an image-receiving sheet for thermal transfer printing comprising a substrate and an image-receiving layer disposed on said substrate, characterized in that said image-receiving layer contains thermoplastic resin fine particle aggregates.

A claim is anticipated under 102(a) only if each and every element as set forth in the claim is found, either expressly or inherently, in a single prior art reference. Verdegaal Bros. V. Union Oil Co. of California, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). The present invention claims an inkjet

recording element comprising a support having thereon an ink receiving layer capable of accepting an inkjet image. Okumura fails to mention inkjet recording elements or ink receiving layers capable of accepting inkjet images, teaching instead thermal transfer printing elements. Therefore, the rejection should be withdrawn.

Rejection of Claims 21, 22 under 25 USC § 103(a):

The Examiner has rejected Claims 21, 22, 25, 29, 31, 32, 37, 39-46, 49, 50, 53 and 54 under 35 U.S.C. 103(a) as being unpatentable over Okumura et al. (5360780) for reasons set forth above and for the following reasons.

Okumura discloses an image-receiving sheet for thermal transfer printing comprising a substrate and an image-receiving layer disposed on said substrate, characterized in that said image-receiving layer contains thermoplastic resin fine particle aggregates.

The present invention relates to porous polyester particles of less than 0.5 micrometers in diameter. These particles, when used in coatings provide enhancements in the gloss of the coating.

To establish a prima facie case of obviousness requires, first, there must be some suggestion or motivation, either in the references themselves, or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art references (or references when combined) must teach or suggest all the claim limitations.

Okumura fails to mention the use of a distribution of particles of mean diameter less than 0.5 micrometers of which 58% of the particles have a diameter of less than 0.5 microns and fails to mention the use of these particles to enhance the gloss of a coated inkjet layer. In fact, Okumura teaches use of particles in a thermal transfer receiving sheet. Okumura also fails to produce a reasonable expectation of success, as Okumura fails to mention that particles of size less than 0.5 micrometers prove useful in increasing gloss or providing an inkjet coating with increased gloss. It would not be obvious to one of ordinary skill in the art would recognize that the materials useful in thermal transfer receiving layers would function properly in inkjet layers, let alone improve the gloss. Finally, Okumura fails to teach all of the limitations of the present claims as it fails to teach or disclose the use of particles of less than 0.5 micrometers and

fails to mention that in a distribution of particles of mean diameter less than 0.5 microns, more than 58% have a particle size of less than 0.5 microns to produce high gloss coatings. As a result, Okumura fails to support a prima facie case of obviousness under 35 U.S.C. 103(a).

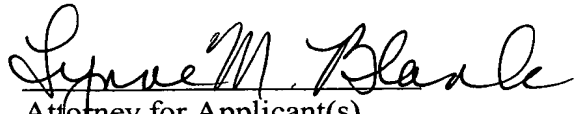
The Examiner also indicates Claims 29, 31 and 32 are rejected for reasons explained with respect to Maeda et al. These claims have been amended as discussed above.

The Examiner has rejected Claim 37 on the same basis of Maeda et al., i.e. one of ordinary skill in the art would have found it obvious to determine reaction conditions. The Applicants believe that this claim benefits from dependence on Claim 21, which, as discussed above, Applicants believe is novel and unobvious.

The Examiner indicates that, with respect to the claims directed to two layers including particles, the particles of the reference may be present in the intermediate and ink-receiving layers and modes above and below 0.5 microns are inherently present in the particles if the average particle size is near 0.5 microns, layer thicknesses and/or coating weights are set forth at col. 9, line 63 to col. 10, line 6 and col. 10, line 50-56 making it obvious to one of ordinary skill in the art, with the guidance set forth in the reference, to determine coating thicknesses in order to obtain desired ink absorption properties and coating characteristics, and support materials are set forth at col. 13, lines 59-64. The Applicants also believe that these claims benefit from dependence on Claim 21, which, as discussed above, Applicants believe is novel and unobvious.

It is believed that the foregoing is a complete response to the Office Action and that the claims are in condition for allowance. Favorable reconsideration and early passage to issue is therefore earnestly solicited.

Respectfully submitted,


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